## Contents of Agriculture, Ecosystems & Environment, Volume 49

Vol. 49 No. 1	May 1994	
Special Issue: Bacillus thuringiensis		
Preface		
Global view of present and future markets for Bt products		
I. Watkinson (North Chicago, IL, USA)		
History of Bacillus thuringiensis		
R.J. Milner (Canberra, A.C.T., Australia)		
Host spectrum of Bacillus thuringiensis		
J. Drummond and D.E. Pinnock (Glen Osmond, S.A., Australia)		
Bacillus thuringiensis toxins and mode of action		
D. Cooper (Glen Osmond, S.A., Australia)	21	
Molecular biology of Bacillus thuringiensis		
A.H. Broadwell (Auckland, New Zealand)	27	
Commercial production and formulation of Bacillus thuringiensis		
J.E. Bryant (Des Plaines, IL, USA)		
Bacillus thuringiensis — product standardisation		
I. Watkinson (North Chicago, IL, USA)		
Present use of, and problems with, Bacillus thuringiensis in Australia		
R.E. Teakle (Indooroopilly, Qld., Australia)		
Present use of, and problems with, Bacillus thuringiensis in New Zealand		
P. J Wigley and C.N. Chilcott (Auckland, New Zealand)	45	
Opportunities for finding new Bacillus thuringiensis strains		
C.N. Chilcott and P.J. Wigley (Auckland, New Zealand)	51	
The use of Bacillus thuringiensis for control of pests of livestock		
D.E. Pinnock (Glen Osmond, S.A., Australia)	59	
Application strategies for Bacillus thuringiensis		
J.E. Bryant (Chicago, IL, USA)	65	
Use of Bacillus thuringiensis in integrated control, especially on cotton pests		
N.W. Forrester (Myall Vale, N.S.W., Australia)	77	
Expression of Bacillus thuringiensis insecticidal protein genes in transgenic crop plants		
D. Llewellyn, Y. Cousins, A. Mathews, L. Hartweck and B. Lyon (Canberra, A.C.T., Australia)	85	
Problems of insect resistance to Bacillus thuringiensis		
W.H. McGaughey (Manhattan, KS, USA)	95	
Microbial ecology of sheep fleece		
E.W. Lyness, D.E. Pinnock and D.J. Cooper (Glen Osmond, S.A., Australia)	103	

Vol. 49 No. 2 June 1994

Recovery of nitrogen by spring barley following incorporation of <sup>15</sup> N-labelled straw and catch crop material	
I.K. Thomsen (Tjele, Denmark) and E.S. Jensen (Roskilde, Denmark)	115
Energetics of baled alfalfa hay production in northern Greece	122
C.A. Tsatsarelis and D.S. Koundouras (Thessaloniki, Greece)  Below-ground interactions between a seedling soybean and pre-established soybean plant with and without mycorrhize	
fungi. 1. Plant biomass, root growth, and mycorrhizal colonization	zai
	121
R.L. Franson, C. Hamel, D.L. Smith and G.J. Bethlenfalvay (Albany, CA, USA)	131
O. Kadeba (Akure, Nigeria)	139
Do semi-natural patches enrich crop fields with predatory epigean arthropods	
A. Kajak and J. Łukasiewicz (Łomianki, Poland)	149
Some animal-related factors influencing the cycling of nitrogen in mixed farming systems in sub-Saharan Africa	
D.L. Romney, P.J. Thorne and D. Thomas (Chatham, UK)	163
Sulphur cycling and its implications on sulphur fertilizer requirements of grazed grassland ecosystems	
M.L. Nguyen (Canterbury, New Zealand) and K.M. Goh (Christchuch, New Zealand)	173
Forestry related land use in the West Usambara mountains, Tanzania	
A.R.S. Kaoneka (Morogoro, Tanzania) and B. Solberg (Aas, Norway)	207
Book reviews	
Water transport in plants	217
Biological diversity	
Announcement from the Publisher	221
Contents of Applied Soil Ecology, Vol. 1, No. 1	222
Vol. 49 No. 3	ulv 1994
Vol. 49 No. 3	uly 1994
Vol. 49 No. 3	uly 1994
Composition of the vesicular-arbuscular mycorrhizal fungi population in an old meadow as affected by pH, phosphor	
Composition of the vesicular-arbuscular mycorrhizal fungi population in an old meadow as affected by pH, phosphor and soil disturbance	
Composition of the vesicular-arbuscular mycorrhizal fungi population in an old meadow as affected by pH, phosphor and soil disturbance C. Hamel (St-Hyacinthe, Que., Canada), Y. Dalpé (Ottawa, Ont., Canada), C. Lapierre (Sainte-Foy, Que.,	us
Composition of the vesicular-arbuscular mycorrhizal fungi population in an old meadow as affected by pH, phosphor and soil disturbance C. Hamel (St-Hyacinthe, Que., Canada), Y. Dalpé (Ottawa, Ont., Canada), C. Lapierre (Sainte-Foy, Que., Canada), R.R. Simard (Ste-Anne-de-Bellevue, Que., Canada) and D.L. Smith (Sainte-Foy, Que., Canada)	us
Composition of the vesicular-arbuscular mycorrhizal fungi population in an old meadow as affected by pH, phosphor and soil disturbance C. Hamel (St-Hyacinthe, Que., Canada), Y. Dalpé (Ottawa, Ont., Canada), C. Lapierre (Sainte-Foy, Que., Canada), R.R. Simard (Ste-Anne-de-Bellevue, Que., Canada) and D.L. Smith (Sainte-Foy, Que., Canada)	us 223
Composition of the vesicular-arbuscular mycorrhizal fungi population in an old meadow as affected by pH, phosphor and soil disturbance  C. Hamel (St-Hyacinthe, Que., Canada), Y. Dalpé (Ottawa, Ont., Canada), C. Lapierre (Sainte-Foy, Que., Canada), R.R. Simard (Ste-Anne-de-Bellevue, Que., Canada) and D.L. Smith (Sainte-Foy, Que., Canada)  Impact of greater sandhill cranes foraging on corn and barley crops  D.E. McIvor and M.R. Conover (Logan, UT, USA)	us 223
Composition of the vesicular-arbuscular mycorrhizal fungi population in an old meadow as affected by pH, phosphor and soil disturbance  C. Hamel (St-Hyacinthe, Que., Canada), Y. Dalpé (Ottawa, Ont., Canada), C. Lapierre (Sainte-Foy, Que., Canada), R.R. Simard (Ste-Anne-de-Bellevue, Que., Canada) and D.L. Smith (Sainte-Foy, Que., Canada)  Impact of greater sandhill cranes foraging on corn and barley crops  D.E. McIvor and M.R. Conover (Logan, UT, USA)	us 223 233
Composition of the vesicular-arbuscular mycorrhizal fungi population in an old meadow as affected by pH, phosphor and soil disturbance  C. Hamel (St-Hyacinthe, Que., Canada), Y. Dalpé (Ottawa, Ont., Canada), C. Lapierre (Sainte-Foy, Que., Canada), R.R. Simard (Ste-Anne-de-Bellevue, Que., Canada) and D.L. Smith (Sainte-Foy, Que., Canada)  Impact of greater sandhill cranes foraging on corn and barley crops  D.E. McIvor and M.R. Conover (Logan, UT, USA)	us 223 233 239
Composition of the vesicular-arbuscular mycorrhizal fungi population in an old meadow as affected by pH, phosphor and soil disturbance  C. Hamel (St-Hyacinthe, Que., Canada), Y. Dalpé (Ottawa, Ont., Canada), C. Lapierre (Sainte-Foy, Que., Canada), R.R. Simard (Ste-Anne-de-Bellevue, Que., Canada) and D.L. Smith (Sainte-Foy, Que., Canada)  Impact of greater sandhill cranes foraging on corn and barley crops  D.E. McIvor and M.R. Conover (Logan, UT, USA)  Chemical characteristics of soil after 40 years of continuous maize cultivation  R. Riffaldi, A. Saviozzi, R. Levi-Minzi and F. Menchetti (Pisa, Italy)	us 223 233 239
Composition of the vesicular-arbuscular mycorrhizal fungi population in an old meadow as affected by pH, phosphor and soil disturbance  C. Hamel (St-Hyacinthe, Que., Canada), Y. Dalpé (Ottawa, Ont., Canada), C. Lapierre (Sainte-Foy, Que., Canada), R.R. Simard (Ste-Anne-de-Bellevue, Que., Canada) and D.L. Smith (Sainte-Foy, Que., Canada)  Impact of greater sandhill cranes foraging on corn and barley crops  D.E. McIvor and M.R. Conover (Logan, UT, USA)	us 223 233 239 es
Composition of the vesicular-arbuscular mycorrhizal fungi population in an old meadow as affected by pH, phosphor and soil disturbance  C. Hamel (St-Hyacinthe, Que., Canada), Y. Dalpé (Ottawa, Ont., Canada), C. Lapierre (Sainte-Foy, Que., Canada), R.R. Simard (Ste-Anne-de-Bellevue, Que., Canada) and D.L. Smith (Sainte-Foy, Que., Canada)	us 223 233 239 es
Composition of the vesicular-arbuscular mycorrhizal fungi population in an old meadow as affected by pH, phosphor and soil disturbance  C. Hamel (St-Hyacinthe, Que., Canada), Y. Dalpé (Ottawa, Ont., Canada), C. Lapierre (Sainte-Foy, Que., Canada), R.R. Simard (Ste-Anne-de-Bellevue, Que., Canada) and D.L. Smith (Sainte-Foy, Que., Canada)	us 223 233 239 es 247
Composition of the vesicular-arbuscular mycorrhizal fungi population in an old meadow as affected by pH, phosphor and soil disturbance  C. Hamel (St-Hyacinthe, Que., Canada), Y. Dalpé (Ottawa, Ont., Canada), C. Lapierre (Sainte-Foy, Que., Canada), R.R. Simard (Ste-Anne-de-Bellevue, Que., Canada) and D.L. Smith (Sainte-Foy, Que., Canada)	us 223 233 239 es 247
Composition of the vesicular-arbuscular mycorrhizal fungi population in an old meadow as affected by pH, phosphor and soil disturbance  C. Hamel (St-Hyacinthe, Que., Canada), Y. Dalpé (Ottawa, Ont., Canada), C. Lapierre (Sainte-Foy, Que., Canada), R.R. Simard (Ste-Anne-de-Bellevue, Que., Canada) and D.L. Smith (Sainte-Foy, Que., Canada)	us 223 233 239 es 247 253
Composition of the vesicular-arbuscular mycorrhizal fungi population in an old meadow as affected by pH, phosphor and soil disturbance  C. Hamel (St-Hyacinthe, Que., Canada), Y. Dalpé (Ottawa, Ont., Canada), C. Lapierre (Sainte-Foy, Que., Canada), R.R. Simard (Ste-Anne-de-Bellevue, Que., Canada) and D.L. Smith (Sainte-Foy, Que., Canada)  Impact of greater sandhill cranes foraging on corn and barley crops  D.E. McIvor and M.R. Conover (Logan, UT, USA)  Chemical characteristics of soil after 40 years of continuous maize cultivation  R. Riffaldi, A. Saviozzi, R. Levi-Minzi and F. Menchetti (Pisa, Italy)  Comparison of the weedy vegetation in old-fields and crop fields on the same site reveals that fallowing crop fields do not result in seedbank buildup of agricultural weeds  E.P. Odum, T.Y. Park and K. Hutcheson (Athens, GA, USA)  Life-cycle analysis of biodegradable packing materials compared with polystyrene chips: the case of popcorn  O. Jolliet (Tänikon, Switzerland), K. Cotting, C. Drexler and S. Farago (Bern, Switzerland)  Vegetation effects on soil solution composition and evapotranspiration—potential impacts of set-aside policies  J. Magid (Frederiksberg, Denmark), N. Christensen (Silkeborg, Denmark) and E. Skop (Roskilde, Denmark)	us 223 233 239 es 247 253
Composition of the vesicular-arbuscular mycorrhizal fungi population in an old meadow as affected by pH, phosphor and soil disturbance  C. Hamel (St-Hyacinthe, Que., Canada), Y. Dalpé (Ottawa, Ont., Canada), C. Lapierre (Sainte-Foy, Que., Canada), R.R. Simard (Ste-Anne-de-Bellevue, Que., Canada) and D.L. Smith (Sainte-Foy, Que., Canada)	us 223 233 239 es 247 253 267
Composition of the vesicular-arbuscular mycorrhizal fungi population in an old meadow as affected by pH, phosphor and soil disturbance  C. Hamel (St-Hyacinthe, Que., Canada), Y. Dalpé (Ottawa, Ont., Canada), C. Lapierre (Sainte-Foy, Que., Canada), R.R. Simard (Ste-Anne-de-Bellevue, Que., Canada) and D.L. Smith (Sainte-Foy, Que., Canada)	us 223 233 239 es 247 253 267
Composition of the vesicular-arbuscular mycorrhizal fungi population in an old meadow as affected by pH, phosphor and soil disturbance  C. Hamel (St-Hyacinthe, Que., Canada), Y. Dalpé (Ottawa, Ont., Canada), C. Lapierre (Sainte-Foy, Que., Canada), R.R. Simard (Ste-Anne-de-Bellevue, Que., Canada) and D.L. Smith (Sainte-Foy, Que., Canada)	us 223 233 239 es 247 253 267 279
Composition of the vesicular-arbuscular mycorrhizal fungi population in an old meadow as affected by pH, phosphor and soil disturbance  C. Hamel (St-Hyacinthe, Que., Canada), Y. Dalpé (Ottawa, Ont., Canada), C. Lapierre (Sainte-Foy, Que., Canada), R.R. Simard (Ste-Anne-de-Bellevue, Que., Canada) and D.L. Smith (Sainte-Foy, Que., Canada)	us 223 233 239 es 247 253 267 279
Composition of the vesicular-arbuscular mycorrhizal fungi population in an old meadow as affected by pH, phosphor and soil disturbance C. Hamel (St-Hyacinthe, Que., Canada), Y. Dalpé (Ottawa, Ont., Canada), C. Lapierre (Sainte-Foy, Que., Canada), R.R. Simard (Ste-Anne-de-Bellevue, Que., Canada) and D.L. Smith (Sainte-Foy, Que., Canada)	us 223 233 239 es 247 253 267 279
Composition of the vesicular-arbuscular mycorrhizal fungi population in an old meadow as affected by pH, phosphor and soil disturbance  C. Hamel (St-Hyacinthe, Que., Canada), Y. Dalpé (Ottawa, Ont., Canada), C. Lapierre (Sainte-Foy, Que., Canada), R.R. Simard (Ste-Anne-de-Bellevue, Que., Canada) and D.L. Smith (Sainte-Foy, Que., Canada)  Impact of greater sandhill cranes foraging on corn and barley crops  D.E. McIvor and M.R. Conover (Logan, UT, USA)	us 223 233 239 es 247 253 267 279
Composition of the vesicular-arbuscular mycorrhizal fungi population in an old meadow as affected by pH, phosphor and soil disturbance C. Hamel (St-Hyacinthe, Que., Canada), Y. Dalpé (Ottawa, Ont., Canada), C. Lapierre (Sainte-Foy, Que., Canada), R.R. Simard (Ste-Anne-de-Bellevue, Que., Canada) and D.L. Smith (Sainte-Foy, Que., Canada)	us

Book reviews	
Management of ecosystems Grasslands Plant pathology Greenwar	
Grasslands	310
Plant pathology	
Greenwar	
Author Index	
Contents of Applied Soil Ecology, Vol. 1, No. 1	
Announcement from the Publisher	321

